

39. (Amended) The moisture transfer composite according to claim 29, wherein said nonwoven material includes at least one material selected from a group consisting of elastomeric stretch fiber, wood pulp, cotton, polypropylene, polyester and rayon.

40. (Amended) The moisture transfer composite according to claim 27, wherein the inner moisture transfer layer includes at least one of a polyester and polyester blend.

REMARKS

Claims 1, 11, 14, 18, 24, 26, 28-29 and 31-40 have been amended. No claims have been canceled or added. Accordingly, claims 1-5, 8, 11 and 14-40 are currently pending in the application.

The Examiner has rejected claims 35-40 for using the tradename, Lycra. This term has been replaced with the phrase elastomeric stretch fiber in the claims and has been added to the specification. It is submitted that this addition to the specification does not constitute new matter.

The specification has also been amended at page 22 to correct a typographical error. The phrase "waterproof film coatings" should refer to waterproof films and waterproof coatings. The claims have also been amended in a manner consistent with the specification.

The claims have been amended to overcome the Examiner's rejection under 35 USC 112, second paragraph, as needed. However, it is submitted that there is no indefiniteness with

respect to rejected claims 33 and 34 (the references to claim 34 actually should be to claim 40). Claim 33 recites an "inner moisture vapor transfer layer" which refers to the corresponding layer in independent claim 19. Similarly, the phrase "inner moisture transfer layer" of claim 40 refers to the corresponding layer in independent claim 27.

Applicant appreciates the Examiner's indication of the allowability of the claims over the prior art. Slight changes have been made to these claims in ways that do not affect their patentability over the cited art. For instance, claim 1 has been amended to remove the terms antimicrobial, germicidal and hydrophilic. Claim 14 has been amended to recite an antimicrobial, germicidal, open-cell foam instead of an antimicrobial, germicidal, reticulated foam. Other amendments have also been made to the claims without affecting the patentability.

In view of the foregoing amendments and remarks, Applicant contends that the above-identified application is now in condition for allowance. Accordingly, reconsideration and reexamination are respectfully requested.

Respectfully submitted,



Shrinath Malur
Registration No. 34,663
Attorney for Applicant

MATTINGLY, STANGER & MALUR
1800 Diagonal Rd., Suite 370
Alexandria, Virginia 22314
(703) 684-1120
Date: January 13, 2003

MARKED UP VERSION OF THE SPECIFICATION

Pages 5 and 6, the paragraph bridging these pages from page 5, line 7 through page 6, line 6, the marked up paragraph is as follows:

Figure 1 illustrates a portion of the liner, or lining system, according to a first embodiment of the present invention. As shown in Figure 1, a first foam material 20 is provided between an inner liner 10 and a second foam material 30. The inner liner 10 can be attached to the first foam material 20 by lamination, stitch or ultra sonically bonded or the like. The second foam material 30 is a germicidal antimicrobial reticulated and/or [hydrofilic] hydrophilic open cell foam and has a thickness of approximately $\frac{1}{8}$ inch. The first foam material is also preferably germicidal reticulated or open cell [hydrofilic] hydrophilic and has a thickness of approximately $\frac{1}{16}$ to $\frac{1}{8}$ inch. All of the foam materials used in the present invention are assumed to be breathable and their thicknesses variable. Depending upon the application, some of the foam materials may not be used and the thickness of any foam material that is used can be changed as needed. For example, a foam called Aquazone by Foamex, Comfortemp by Frisby or Netsorb by Vita Olympic or the like can be used. Preferably, the germicidal antimicrobial [hydrofilic] hydrophilic or reticulated foam is attached to a nonwoven top sheet made of [lycra] Lycra (an elastomeric stretch fiber), wood pulp and cotton, polypropylene, polyester, or rayon or a combination thereof. Otherwise, this two part structure can

be replaced with an elastomeric composite having a foam with a nonwoven top sheet formed in a single process. Preferably, in either case, the nonwoven top sheet is one manufactured by Dupont (Sontara Technology nonwoven), Dexter Synthetics, Veritex, Nordlys or the like.

Page 6, the second full paragraph, lines 18 through 22, the marked up paragraph is as follows:

The first fabric is an antimicrobial, antifungal polypropylene (also referred to as polyolefin) [lycra]Lycra blend (2%) with INNOVA fiber, or the like. INNOVA is a continuous filament fiber (manufactured by Deercreek Fabrics, Inc. or Menra Mills).

Page 7, the sixth full paragraph, lines 21 through 23 the marked up paragraph is as follows:

The eighth fabric is an antimicrobial, antifungal Polar Tec Series 2000, which is a wickable, moisture transfer fiber, containing [lycra]Lycra, polypropylene, or the like.

Pages 8 and 9, the paragraph bridging these pages from page 8, line 9 through page 9, line 7, the marked up paragraph is as follows:

As discussed above, first foam material 20 may be a cellular elastomeric composite comprised of a layer of germicidal antimicrobial open cell [hydrofilic] hydrophilic polyurethane foam such as Aquazone and a nonwoven top sheet.

All of the foam materials discussed herein are preferably polyurethane, although not specifically mentioned each time. The inclusive top sheet is preferably composed of [lycra] Lycra, wood pulp, rayon, cotton, polypropylene, polyester, or a combination thereof. Alternatively, foam material 20 can be a foam that is separate from the nonwoven top sheet and is attached to the nonwoven top sheet by lamination, stitch bonding or the like. The nonwoven top sheet (when used) abuts the next layer of 1/4" reticulated and/or open cell [hydrofilic] hydrophilic foam, or second foam material 30[,]. The second foam material 30 may also be a germicidal antimicrobial reticulated and/or open cell hydrophilic 1/4" foam, such as Aquazone with or without Frisby Technologies applied or Comfortemp. The second foam material is preferably backed with a nonwoven top sheet as mentioned above. In fact, any of the foam materials discussed herein can be backed by such a nonwoven top sheet, but the nonwoven top sheet is not absolutely necessary. Also, many of the foam materials are interchangeable depending upon specific needs. Alternatively, the foam materials can be flame laminated to a non woven apertured top sheet of cotton, polypropylene or polyester, or a blend thereof, for example.

Pages 13 and 14, the paragraph bridging these pages from page 13, line 19 through page 14, line 2, the marked up paragraph is as follows:

Also shown in Figure 4 is a protective rim or cuff 80, preferably made of neoprene covered by [lycra]Lycra. Also, a germicidal hydrophilic open cell and/or reticulated foam by Foamex or Vita Olympic, for example, can be used. A pull tab 90, preferably made of nylon, is connected to the protective rim 80. An abrasive protective material 100 is provided adjacent to a tongue 300. Another abrasive protective material 110 is provided around the heel portion of the shoe. Abrasive protective material 110 is supplied by Schoeller or Dupont, for example.

Pages 17 and 18, the paragraph bridging these pages from page 17, line 23 through page 18, line 22, the marked up paragraph is as follows:

Figures 6, 7 and 8 illustrate the tongue 300 of the boot in more detail. The tongue is designed to add further comfort and support. As shown in Figure 8, an inner liner fabric 310 of the tongue 300 is preferably one of the other inner liner materials mentioned above, especially the polypropylene [lycra]Lycra blend with INNOVA fiber, the polyester microfiber or the polyester looped terry or the like. This inner liner fabric 310 is preferably laminated to a structural support foam 320, which is preferably a $\frac{1}{4}$ inch antimicrobial reticulated and/or slow recovery punctured foams. A hydrophilic open cell or reticulated perforated foam 330 abuts a structural support foam 320. The hydrophilic open cell or the slow recovery perforated foams 330 can take the shape of

the foot bones and protect the upper foot from damage. A moldable spacer material may also be used in combination with foam 330 or in some cases in place of the foam 330. The structural support 320 can also be shaped to accommodate the foot and protect the ankle bones. A moisture transfer material 340 lies over the outer edges of the hydrophilic perforated foam or combination foam and spacer material 330 and is connected to the inner liner 310 and underlies the outer protective polyurethane layer 350. This moisture transfer material 340 is preferably made from a material known as aero-spacer Dri-lex, which is manufactured by Faytex Corp, or an aero-spacer fabric manufactured by Apex Mills or the like. Optionally, a nonwoven material such as Sontara Technology manufactured by Dupont can be used.

Pages 19 and 20, the paragraph bridging these pages from page 19, line 20 through page 20, line 7, the marked up paragraph is as follows:

As shown in Figure 6, polyurethane, kevlar fabrics or synthetic breathable leather layer (by Daewoo Corp. for example) 350 is surrounded by aero-spacer Dri-lex 340, or a substitute as mentioned above. At the top of the tongue 300 is an abrasive grip fabric 100 (such as a that is manufactured by Schoeller and identified by the number 6500), also shown in Figure 4. Stitching is identified by numeral 370. Figure 7 illustrates a top portion of the tongue 300, and shows stitching 370 and the inner liner fabric 310. It is

recommended that [lycra]Lycra and nylon thread such as those used by the Dupont Xymid Group or Tietex be used for these stitched areas or adhesive bonding by Applied Extrusion Technologies, or the like. In fact, adhesive bonding may be utilized in place of or in combination with several stitched areas on the outer liner fabrics.

Page 22, second full paragraph, lines 9 through 20, the marked up paragraph is as follows:

The microfiber technology disclosed above is rapidly developing and changing and has greatly increased the potential for improved performance of such products such as in-line skates, provided that they are properly utilized as in the present invention. These new products are part of rapidly developing fabric technology. The present invention employs a combination of fabrics, foam layers, nonwovens, spacer fabrics, breathable membranes, encapsulated technology, structural woven water repellent fabrics, or waterproof filmsand coatings in such combinations that increase the performance of the products in which they are used as well as increase breathability. The waterproof/breathable membranes have also only recently developed and are believed to be less than ten years old.

Page 25, first full paragraph, lines 3 through 12, the marked up paragraph is as follows:

The outer shell combined materials are then laminated, stitched or ultrasonically bonded, or the like, to interior foam layers. An air bladder may be added in combination with or in place of the molded foam and structural mesh to aid in comfort and performance. If the internal layers of foam and nonwovens are stitch bonded, it is recommended that the process with [lycra] Lycra thread by the Xymid Group of Dupont be used or the process developed by Tietex with nylon thread, or the like. The outer shell fabric seams may be stitched or adhesively bonded.

MARKED UP VERSION OF REWRITTEN CLAIMS

1. (Amended) A moisture transfer system comprising a plurality of layers arranged to transfer moisture in a predetermined direction, the moisture transfer system comprising:

an inner fabric layer;

an outer fabric layer positioned relative to the inner fabric layer in the direction of moisture flow, wherein moisture flows from the inner fabric layer through any intermediate layers and then through the outer fabric layer; and

at least one foam material positioned between the inner fabric layer and the outer fabric layer,

wherein the outer fabric layer [is treated to have] has waterproof/breathable characteristics; and

wherein the foam material is an [antimicrobial, germicidal, hydrophilic] open-cell foam that is backed by a nonwoven top sheet.

11. (Amended) The moisture transfer system according to claim 1, wherein the foam material [is treated to have] has reversible enhanced thermal properties.

14. (Amended) A moisture transfer system comprising a plurality of layers arranged to transfer moisture in a

predetermined direction, the moisture transfer system comprising:

an inner fabric layer;

an outer fabric layer positioned relative to the inner fabric layer in the direction of moisture flow, wherein moisture flows from the inner fabric layer through any intermediate layers and then through the outer fabric layer; and

at least one foam material positioned between the inner fabric layer and the outer fabric layer, wherein the foam material is an antimicrobial, germicidal, [reticulated] open-cell foam that is backed by a nonwoven top sheet, and

wherein the outer fabric layer [is treated to have] has waterproof/breathable characteristics.

18. (Amended) The moisture transfer system according to claim 14, wherein the outer fabric layer is made waterproof by application of one of a waterproof film and a waterproof coating.

24. (Amended) The liner according to claim 20, wherein the outer fabric layer is made waterproof by application of one of a waterproof film and a waterproof coating.

26. (Amended) The liner according to claim 19, wherein at least one of the layers of the liner [the foam material is treated to have] has reversible enhanced thermal properties.

28. (Amended) The moisture transfer composite according to claim 27, wherein at least one layer of the composite [is treated to have] has reversible enhanced thermal properties.

29. (Amended) The moisture transfer composite according to claim 28, wherein the foam layer [is treated to have] has reversible enhanced thermal properties.

31. (Amended) The moisture transfer [composite] system according to claim 1, wherein the inner fabric layer includes at least one of a polyester and polyester blend.

32. (Amended) The moisture transfer [composite] system according to claim 14, wherein the inner fabric layer includes at least one of a polyester and polyester blend.

33. (Amended) The liner according to claim 19, wherein the inner moisture vapor transfer layer includes at least one of a polyester and polyester blend.

34. (Amended) The [liner] moisture transfer system according to claim 1, wherein said nonwoven top sheet includes at least one material selected from a group consisting of

[lycra] elastomeric stretch fiber, wood pulp, cotton, polypropylene, polyester and rayon.

35. (Amended) The [liner] moisture transfer system according to claim 11, wherein said nonwoven top sheet includes at least one material selected from a group consisting of [lycra] elastomeric stretch fiber, wood pulp, cotton, polypropylene, polyester and rayon.

36. (Amended) The [liner] moisture transfer system according to claim 14, wherein said nonwoven top sheet includes at least one material selected from a group consisting of [lycra] elastomeric stretch fiber, wood pulp, cotton, polypropylene, polyester and rayon.

37. (Amended) The liner according to claim 19, wherein said nonwoven material includes at least one material selected from a group consisting of [lycra] elastomeric stretch fiber, wood pulp, cotton, polypropylene, polyester and rayon.

38. (Amended) The [liner] moisture transfer composite according to claim 27, wherein said nonwoven top sheet includes at least one material selected from a group consisting of [lycra] elastomeric stretch fiber, wood pulp, cotton, polypropylene, polyester and rayon.

39. (Amended) The [liner] moisture transfer composite according to claim 29, wherein said nonwoven material includes at least one material selected from a group consisting of [lycra] elastomeric stretch fiber, wood pulp, cotton, polypropylene, polyester and rayon.

40. (Amended) The moisture transfer composite according to claim 27, wherein the inner moisture transfer layer includes at least one of a polyester and polyester blend.